

Reference (include title, author, journal title, year of publication, volume and issue, pages)	Evidence level (I-VII)	Key findings, outcomes or recommendations
<p>Australian Resuscitation council, 2016. <i>ANZCOR Guideline 13.3 –Assessment of the Newborn Infant</i>. Australian Resuscitation council, pp.1-4. file:///C:/Users/ParsonL/Downloads/anzcor-guideline-13-3-jan16%20(1).pdf</p>	<p>V</p>	<ul style="list-style-type: none"> - Neonatal assessment should address tone, breathing and heart rate, with a strong focus on respiratory distress and oxygenation - Signs of respiratory distress include recessions and/or retractions of the lower ribs and sternum. The patient may also present with grunting and/or stridor - Apnoea is late sign of respiratory distress, where the patient ceases to spontaneously breathe - ECG and oximetry monitoring can provide a rapid and accurate display of the heart rate and oxygen saturations. It can minimise physical assessments while the baby recovers from the procedure - Patient’s colour must be observed post-extubation as this can assist in determining stability in gas exchange, blood pressure and overall cardiac output.
<p>Manley, B. J., Doyle, L. W., Owen, L. S., & Davis, P. G. (2016). Extubating Extremely Preterm Infants: Predictors of Success and Outcomes following Failure. <i>Journal of Pediatrics</i>(173), 45-49. DOI: 10.1016/j.jpeds.2016.02.016</p>	<p>II</p>	<ul style="list-style-type: none"> - A secondary analysis of data from a randomized trial of post-extubation respiratory support that included 174 extremely preterm infants - Objective was to identify variables that predict extubation success in extremely preterm infants born <28 weeks gestational age (GA), and to compare outcomes between those who had successful or failed extubation - It was found that in extremely preterm infants, <i>higher GA and lower pre-extubation PCO2</i> predicted extubation success. Infants in whom extubation failed were more likely to die and have prolonged respiratory support and hospitalisation.

<p>Shalish, W., Guilherme Medes Sant, A., Girija, N., & Sanjaj, C. (2014). When and How to Extubate Premature Infants from Mechanical Ventilation. <i>Current Pediatrics Reports</i>, 2, 18–25. DOI: https://doi.org/10.1007/s40124-013-0032-6</p>	<p>V</p>	<ul style="list-style-type: none"> - The need for mechanical ventilation is associated with an increase in mortality and morbidity such as ventilator-associated pneumonia - Neonatologists should start to consider weaning the levels of ventilatory support as soon as the extreme preterm infant is intubated. It is critical that a proactive weaning process is in place and followed. This will allow for the provision of minimal necessary support, while reducing lung injury. Preterm infants should then be considered for extubation when at minimal ventilatory settings and deemed at the highest chance of a successful attempt. - The disconnection of a patient from MV is a complex and continuous process. It involves active weaning of ventilator settings, assessment of extubation readiness, and provision of adequate supervision and non-invasive support following procedure if required - Infants with a history of failed extubations or multiple intubations are predisposed to failing again - The procedure itself must be done in a controlled setting, in the presence of skilled and highly trained staff members - From these studies, we conclude that caffeine is beneficial and should be part of the regimen when preparing an infant for extubation. It appears reasonable to give it within at least 24 h from the projected time of extubation. - Stridor is relatively common post-extubation which can increase the infants risk of failed extubation. Risk factors include prolonged MV, history of multiple traumatic intubations, previous failed extubation due to subglottic oedema
<p>Joseph, R. A. (2015). Prolonged mechanical ventilation: challenges to nurses and outcome in extremely preterm babies. <i>Critical Care Nurse</i>, 35, 58–66. DOI: 10.4037/ccn2015396</p>	<p>V</p>	<ul style="list-style-type: none"> - Small amount of mucus can create a large increase in airway resistance. This decreases air flow and, without expiratory flow, the secretions are not expelled. - Consider the need for suction of oral or nasopharynx if obstructed airflow - Highly sensitive equipment, such as ECG, is helpful for the monitoring of the patient. Alarm limits for heart rate, respiration, blood pressure, and oxygen saturation are set on the basis of current evidence and the NICU's specific standard of care - Open, honest communication with the family is necessary for reducing their anxiety - Nurses must provide a safe environment for the infants in the unit and regulate the infection control policies

<p>S. M. Donn & Sinha, S. (2017). Weaning and extubation. <i>Manual of Neonatal Respiratory Care</i>, in S. M. Donn and S. Sinha, Eds., pp. 633–639, Springer International Publishing, Switzerland, 4th edition.</p>	<p>VII</p>	<ul style="list-style-type: none"> - As the patient’s ventilation improves, FiO₂ should be reduced to below 0.40 and ventilatory parameters can be decreased along with normal blood gases - Weaning and extubation transitions the work of breathing from ventilator to patient. Respiratory drive must then be adequate to sustain alveolar ventilation - Sedation should be reduced and stopped if possible before extubation - Methylxanthines are helpful in the preterm neonate, and these populations should be started on CPAP or high flow nasal cannula after extubation - Systemic steroids and diuretics may be useful to extubate pre-terms still ventilated after the first week of life - Prone positioning can be helpful in stabilizing the chest wall and improving diaphragmatic excursion - A chest radiograph is not routinely necessary, unless there is clinical evidence of respiratory distress
<p>Wilawan, P., Patcharee, W., & Chavee, B. Positioning of Preterm Infants for Optimal Physiological Development: a systematic review. <i>JBI Library of Systematic Reviews</i>. 7(7), 224-259. doi: 10.11124/jbisrir-2009-188</p>	<p>V</p>	<ul style="list-style-type: none"> - This review evaluates the clinical evidence of the effects of positioning of preterm infants with regard to physiological outcomes and sleep states - The results of this review support the prone position in preterm infants for improvement of arterial oxygen saturation, improved lung and chest wall synchrony of respiratory improvements, decreased incidence of apnoea in infants with a clinical history of apnoea, promoted sleep, and decreased gastroesophageal reflux - Therefore, all preterm infants placed in the prone position should have continuous cardio-respiratory and oxygen saturation monitoring
<p>Cam Smirk, Consultant Neonatologist, Royal Children’s Hospital</p>	<p>VII</p>	<ul style="list-style-type: none"> - Approval for Fasting Guideline to be imbedded in guideline. Therefore, standard approach for fasting patients prior to extubation - Discussed the need for medical examination to assess stability prior to baby feeding or getting out for cuddles (to consider if earlier than the 4 hours recommended to leave baby undisturbed)
<p>Elena Miceli, Hospital Pharmacist, Royal Children’s Hospital</p>	<p>VII</p>	<ul style="list-style-type: none"> - Approval of nebulised adrenaline dose and dilution